PATENT ABSTRACTS OF JAPAN

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(54) SCALE LIQUID, METHOD FOR PRODUCING SCALE LIQUID, PROCESSED FOOD AND METHOD FOR PRODUCING PROCESSED FOOD

(57)Abstract:
PROBLEM TO BE SOLVED: To provide an odorless scale liquid obtained by using scales which are conventionally discarded, as a raw material, and easily applied to a processed food.
SOLUTION: This scale liquid is obtained by dissolving the scale in an acidic water.

TECHNICAL FIELD

[Field of the Invention] This invention is in the manufacture approach of of the processed food and processed food containing the manufacture approach of scales liquid and scales liquid, and scales liquid.

PRIOR ART

[Description of the Prior Art] In case fish, such as a fished sardine, are processed, a scale (it is hereafter called "scales") carries out a byproduction in large quantities. Since there had been no use application for a long time, the scales in seafood processing were processed as industrial waste. It attracts attention from things as new nutrient material etc. that a collagen, calcium, etc. are contained in scales in recent years.
[0003] As a new application of scales, an anti-osteoporosis agent (JP,10-203995,A), **** of an animal, an improvement agent (JP,10-155428,A), etc. are known, for example. Moreover, as scales of a food grade, the scales powder which ground scales in the shape of powder is known.
[0004] However, in order not to dissolve in usual water, even if what only merely carried

out disintegration of the scales adds scales powder to water, it will precipitate. For this reason, scales were not able to be used for a drink, and it is difficult to use for jelly and it was not able to utilize the nutrition component which scales have effective in food.
[0005] Moreover, the amount of the scales which there is a peculiar smell (it is hereafter called a "scales smell") in scales, and can be added for food was very little.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] The technical problem which this invention tends to solve uses as a raw material the scales discarded conventionally, and is to offer the processed food with which the application to food contains easy odorless scales liquid, its manufacture approach, and scales liquid, and its manufacture approach.

EFFECT OF THE INVENTION

[Effect of the Invention] By this invention according to claim 1, an odorless scales material with the easy application to a processed food is offered.
[0048] By invention given in claim 2 thru/or 4, scales can manufacture to homogeneity the scales liquid which distributed or dissolved, and the scales smell of the scales liquid moreover obtained is reduced sharply.
[0049] In addition to the above-mentioned effectiveness, invention according to claim 5 can reduce a scales smell more.
[0050] Invention according to claim 6 or 7 can utilize the nutrition component of scales effectively, and can offer the processed food moreover reduced sharply [a scales smell].

MEANS

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, as a result of repeating research wholeheartedly, scales dissolve in acid water and, moreover, the scales liquid came to complete a header and this invention for the scales smell being reduced sharply.
[0008] That is, the 1st invention for solving the above-mentioned technical problem relates to the scales liquid characterized by scales carrying out dissolution distribution acid underwater one.
[0009] The 2nd invention for solving the above-mentioned technical problem relates to the manufacture approach of the scales liquid characterized by making acid water carry out dissolution distribution of the scales.
[0010] The 3rd invention for solving the above-mentioned technical problem is the 2nd above-mentioned invention, and is characterized by said acid water being with a pH of five or less acid water.
[0011] The 4th invention for solving the above-mentioned technical problem is the 2nd or 3rd above-mentioned invention, and is characterized by the acid in said acid water being a citric acid or a phosphoric acid.
[0012] The 5th invention for solving the above-mentioned technical problem is the above 2nd thru/or the 4th invention, and is characterized by making acid water carry out dissolution distribution of the bottom scales of existence of a cyclodextrin.

[0013] The 6th invention for solving the above-mentioned technical problem relates to the processed food characterized by including the scales liquid of invention of the above 1st.
[0014] The 7th invention for solving the above-mentioned technical problem relates to the manufacture approach of the processed food characterized by adding the scales liquid of invention of the above 1st.
[0015]
[Embodiment of the Invention] Although especially the class of fish used as a raw material will not be limited if the scales in this invention are scales which carry out a byproduction in seafood processing, a sardine, a Pacific saury, etc. which are fished in large quantities, for example can be mentioned. Let what rinsed the scales which exfoliated from the body of a fish in seafood processing be the scales of a raw material.
[0016] In order to manufacture the scales liquid of this invention and to shorten dissolution time amount although what is necessary is just to make acid water carry out dissolution distribution of the above-mentioned scales, it is desirable to grind scales with a well-known grinding means. As a grinding means, a hammer mill, a ball mill, a pin mill, a jet mill, an atomizer, a pulverizer, etc. can be mentioned, for example.
[0017] What is necessary is to add and stir scales in the acid water preferably adjusted to pH4-pH1.5 so that it may become 0.1 - 3% of the weight of concentration, and just to make it distribute or dissolve scales in homogeneity five or less pH, in order to manufacture the scales liquid of this invention. The scales smell is reducing the obtained scales liquid sharply.
[0018] It does not dissociate, although there is a part of thing currently distributed without the ability finishing melting into the dissolved inside when the concentration of scales is high although it is dissolving finely when the scales liquid of this invention has the low concentration of scales.
[0019] As an acid used in order to manufacture the acid water of this invention, especially if used for food, it will not be limited, but although inorganic acids, such as organic acids, such as a citric acid, a lactic acid, and a malic acid, and a phosphoric acid, a hydrochloric acid, can be mentioned, for example, strength to the citric acid or phosphoric acid of the dissolution dispersion force over scales is desirable.
[0020] In order to manufacture the scales liquid of this invention, acid water may be manufactured beforehand, scales may be added to the acid water, scales and an acid may be added to water at coincidence, or water may be made to distribute scales and an acid may be added there.
[0021] Furthermore, a scales smell is improved more by using a cyclodextrin together. alpha-cyclodextrin, beta-cyclodextrin, and gamma-cyclodextrin can be mentioned as a cyclodextrin to be used.
[0022] The addition of a cyclodextrin has the good concentration which does not deposit in ordinary temperature, and it should just choose it suitably in 2% or less of range in beta-mold 10% or less with alpha- and gamma-mold.
[0023] Although the reason a scales smell is deodorized by making it dissolve in acid water is unknown, it is thought that reduction of the scales smell by concomitant use of a cyclodextrin is because the matter stinking in the cyclodextrin which is annular is incorporated.
[0024] The scales smell is improved sharply, and since the scales liquid of this invention

is a stable solution, the application to various kinds of processed foods is possible for it. Although it will not be limited especially if the processed food which can add the scales liquid of this invention is with a pH of five or less food, processed foods, such as juice, a nutrition supplement drink, soup, jelly, terrine, a pudding, mayonnaise, yogurt, a jam, confectionary, and a seasoning, can be mentioned, for example.
[0025] What is necessary is to choose suitably the material of processed foods, such as sugar, an artificial sweetener, a gelling agent, a seasoning, coloring matter, and perfume, and just to use it according to the class of processed food, in order to prepare the processed food of this invention.
[0026] What is necessary is just to add the scales liquid of this invention by the production process of a processed food, in order to manufacture the processed food of this invention. In the case of jelly, scales may be added to the water which added the acid and cyclodextrins, such as a citric acid, it stirs them, dissolves scales, and, specifically, is warmed at 60 degrees C. The liquid which was made to dissolve a gelling agent beforehand independently and kept it warm at 70 degrees C is prepared, and both liquid is often mixed. It is cheerfully filled up with this liquid, it cools after a seal, and jelly is obtained.
[0027] In the case of a drink, scales are well stirred in the water which added the acid and cyclodextrins, such as a citric acid, it dissolves scales, and is warmed at 60 degrees C. Sugar, perfume, coloring matter, etc. are added to this liquid, stirring homogenization is carried out, a seal is filled up and carried out to a container, and it considers as a drink.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention is in the manufacture approach of of the processed food and processed food containing the manufacture approach of scales liquid and scales liquid, and scales liquid.
[0002]
[Description of the Prior Art] In case fish, such as a fished sardine, are processed, a scale (it is hereafter called "scales") carries out a byproduction in large quantities. Since there had been no use application for a long time, the scales in seafood processing were processed as industrial waste. It attracts attention from things as new nutrient material etc. that a collagen, calcium, etc. are contained in scales in recent years.
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[0004] However, in order not to dissolve in usual water, even if what only merely carried out disintegration of the scales adds scales powder to water, it will precipitate. For this reason, scales were not able to be used for a drink, and it is difficult to use for jelly and it was not able to utilize the nutrition component which scales have effective in food.
[0005] Moreover, the amount of the scales which there is a peculiar smell (it is hereafter called a "scales smell") in scales, and can be added for food was very little.
[0006]

[Problem(s) to be Solved by the Invention] The technical problem which this invention tends to solve uses as a raw material the scales discarded conventionally, and is to offer the processed food with which the application to food contains easy odorless scales liquid, its manufacture approach, and scales liquid, and its manufacture approach.
[0007]
[Means for Solving the Problem] In order to solve the above-mentioned technical problem, as a result of repeating research wholeheartedly, scales dissolve in acid water and, moreover, the scales liquid came to complete a header and this invention for the scales smell being reduced sharply.
[0008] That is, the 1st invention for solving the above-mentioned technical problem relates to the scales liquid characterized by scales carrying out dissolution distribution acid underwater one.
[0009] The 2nd invention for solving the above-mentioned technical problem relates to the manufacture approach of the scales liquid characterized by making acid water carry out dissolution distribution of the scales.
[0010] The 3rd invention for solving the above-mentioned technical problem is the 2nd above-mentioned invention, and is characterized by said acid water being with a pH of five or less acid water.
[0011] The 4th invention for solving the above-mentioned technical problem is the 2nd or 3rd above-mentioned invention, and is characterized by the acid in said acid water being a citric acid or a phosphoric acid.
[0012] The 5th invention for solving the above-mentioned technical problem is the above 2nd thru/or the 4th invention, and is characterized by making acid water carry out dissolution distribution of the bottom scales of existence of a cyclodextrin.
[0013] The 6th invention for solving the above-mentioned technical problem relates to the processed food characterized by including the scales liquid of invention of the above 1st.
[0014] The 7th invention for solving the above-mentioned technical problem relates to the manufacture approach of the processed food characterized by adding the scales liquid of invention of the above 1st.
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[Embodiment of the Invention] Although especially the class of fish used as a raw material will not be limited if the scales in this invention are scales which carry out a byproduction in seafood processing, a sardine, a Pacific saury, etc. which are fished in large quantities, for example can be mentioned. Let what rinsed the scales which exfoliated from the body of a fish in seafood processing be the scales of a raw material.
[0016] In order to manufacture the scales liquid of this invention and to shorten dissolution time amount although what is necessary is just to make acid water carry out dissolution distribution of the above-mentioned scales, it is desirable to grind scales with a well-known grinding means. As a grinding means, a hammer mill, a ball mill, a pin mill, a jet mill, an atomizer, a pulverizer, etc. can be mentioned, for example.
[0017] What is necessary is to add and stir scales in the acid water preferably adjusted to pH4-pH1.5 so that it may become 0.1 - 3% of the weight of concentration, and just to make it distribute or dissolve scales in homogeneity five or less pH, in order to manufacture the scales liquid of this invention. The scales smell is reducing the obtained scales liquid sharply.

[0018] It does not dissociate, although there is a part of thing currently distributed without the ability finishing melting into the dissolved inside when the concentration of scales is high although it is dissolving finely when the scales liquid of this invention has the low concentration of scales.
[0019] As an acid used in order to manufacture the acid water of this invention, especially if used for food, it will not be limited, but although inorganic acids, such as organic acids, such as a citric acid, a lactic acid, and a malic acid, and a phosphoric acid, a hydrochloric acid, can be mentioned, for example, strength to the citric acid or phosphoric acid of the dissolution dispersion force over scales is desirable.
[0020] In order to manufacture the scales liquid of this invention, acid water may be manufactured beforehand, scales may be added to the acid water, scales and an acid may be added to water at coincidence, or water may be made to distribute scales and an acid may be added there.
[0021] Furthermore, a scales smell is improved more by using a cyclodextrin together. alpha-cyclodextrin, beta-cyclodextrin, and gamma-cyclodextrin can be mentioned as a cyclodextrin to be used.
[0022] The addition of a cyclodextrin has the good concentration which does not deposit in ordinary temperature, and it should just choose it suitably in 2% or less of range in beta-mold 10% or less with alpha- and gamma-mold.
[0023] Although the reason a scales smell is deodorized by making it dissolve in acid water is unknown, it is thought that reduction of the scales smell by concomitant use of a cyclodextrin is because the matter stinking in the cyclodextrin which is annular is incorporated.
[0024] The scales smell is improved sharply, and since the scales liquid of this invention is a stable solution, the application to various kinds of processed foods is possible for it. Although it will not be limited especially if the processed food which can add the scales liquid of this invention is with a pH of five or less food, processed foods, such as juice, a nutrition supplement drink, soup, jelly, terrine, a pudding, mayonnaise, yogurt, a jam, confectionary, and a seasoning, can be mentioned, for example.
[0025] What is necessary is to choose suitably the material of processed foods, such as sugar, an artificial sweetener, a gelling agent, a seasoning, coloring matter, and perfume, and just to use it according to the class of processed food, in order to prepare the processed food of this invention.
[0026] What is necessary is just to add the scales liquid of this invention by the production process of a processed food, in order to manufacture the processed food of this invention. In the case of jelly, scales may be added to the water which added the acid and cyclodextrins, such as a citric acid, it stirs them, dissolves scales, and, specifically, is warmed at 60 degrees C. The liquid which was made to dissolve a gelling agent beforehand independently and kept it warm at 70 degrees C is prepared, and both liquid is often mixed. It is cheerfully filled up with this liquid, it cools after a seal, and jelly is obtained.
[0027] In the case of a drink, scales are well stirred in the water which added the acid and cyclodextrins, such as a citric acid, it dissolves scales, and is warmed at 60 degrees C. Sugar, perfume, coloring matter, etc. are added to this liquid, stirring homogenization is carried out, a seal is filled up and carried out to a container, and it considers as a drink.
[0028]

[Example] according to the presentation ratio shown in examples 1-5 and example of comparison 1 table 1, scales powder (a trade name -- "-- colla tempestade wooden clogs -- the id -- " -- the SHIDA KANZUME Co., Ltd. make), sugar, beta-cyclodextrin, and the citric acid (or lactic acid) were added to water, were heated, and scales liquid was prepared. Evaluation was performed after cooling this liquid. Operating procedure was performed as follows.
Scales powder, sugar, the citric acid (or lactic acid), and beta-cyclodextrin were added to <procedure> 1 water.
[0029] 2) a mixer (a trade name "Clearmix CLM-L2.5S" and M Technique shrine make) -- using -- 9000rpm -- it stirred for 5 minutes.
[0030] 3) 2 liquid was heated to 85 degrees C.
[0031] 4) 3 liquid was cooled and organic-functions evaluation was performed.
<Valuation-basis> distribution and solubility O: It is distributing and dissolving.
[0032] **: Although precipitate is produced slightly, distribute easily by light stirring.
[0033]
x: It distributes and dissolves and has not run out.
Scales smell O: Even if it compares with a control plot, don't stink.
[0034] **: Stink slightly as compared with a control plot.
[0035] x: Stink as compared with a control plot.
[0036]
[Table 1]

	対照区	実施例1	実施例2	実施例3	実施例4	実施例5	比較例1
魚鱗粉末	–	3	3	5	5	3	0.5
砂糖	15	15	15	15	15	15	15
クエン酸	0.36	0.36	0.36	0.36	0.36	–	–
50%乳酸溶液	–	–	–	–	–	4	–
β-サイクロデキストリン	–	–	2	–	2	2	–
水	84.64	81.64	79.64	79.64	77.64	76	84.5
合計	100	100	100	100	100	100	100
pH	3.6	3.8	3.8	3.9	3.9	3.5	6.9
分散・溶解性	–	○	○	△	△	○	×
魚鱗臭の有無	–	○	○	△	○	○	×

[0037] Distributing and dissolving distribution and the "soluble" examples 1 and 2 finely, the solution presented green.
[0038] Examples 3-5 are easily distributed by adding light stirring, although precipitate will arise if it puts.
[0039] even if precipitate produces the examples 1 and 2 of a comparison and it adds stirring -- immediately -- precipitating -- carrying out -- obtaining -- **
Although the "scales smell" examples 1, 2, and 4 were compared with the control plot, especially the scales smell was not sensed.
[0040] As compared with the control plot, as for the example 3, the scales smell was sensed small.
[0041] There was the scales smell in the examples 1 and 2 of a comparison.

According to the presentation shown in example 6 table 2, a citric acid, scales powder, sugar, beta-cyclodextrin, and the gelling agent (gellant gum, xanthan gum) were added to water, heating cooling was carried out, and it evaluated by preparing jelly. Operating procedure was performed as follows.
Scales powder, sugar, the citric acid, and beta-cyclodextrin were added to the half water used for <procedure> 1 jelly.
[0042] 2) a mixer (a trade name "Clearmix CLM-L2.5S" and M Technique shrine make) -- using -- 9000rpm -- it stirred for 5 minutes.
[0043] 3) Gellant gum and xanthan gum were added to the water of the remaining one half, and it heated to 90 degrees C.
[0044] 4) It cooled, after mixing 1 liquid and 3 liquid, and organic-functions evaluation was performed according to the example 1. In addition, gel strength was measured using "rheometer CR-200D" (product made from Sun Science). Measurement used the phi5mm plunger and was performed by plunger speed 60 mm/min.
[0045]
[Table 2]

	実施例6
ジェランガム	0.2
キサンタンガム	0.4
魚鱗粉末	1
砂糖	15
クエン酸	0.36
β－サイクロデキストリン	2
水	81.64
合計	100
pH	3.8
分散・溶解性	○
魚鱗臭の有無	○
ゲル強度(g／cm²)	52

[0046] The jelly prepared in the example 6 was jelly which scales distribute to homogeneity and does not sense a scales smell, either.
[0047]
[Effect of the Invention] By this invention according to claim 1, an odorless scales material with the easy application to a processed food is offered.
[0048] By invention given in claim 2 thru/or 4, scales can manufacture to homogeneity the scales liquid which distributed or dissolved, and the scales smell of the scales liquid moreover obtained is reduced sharply.
[0049] In addition to the above-mentioned effectiveness, invention according to claim 5 can reduce a scales smell more.
[0050] Invention according to claim 6 or 7 can utilize the nutrition component of scales effectively, and can offer the processed food moreover reduced sharply [a scales smell].

EXAMPLE

[Example] according to the presentation ratio shown in examples 1-5 and example of comparison 1 table 1, scales powder (a trade name -- "-- colla tempestade wooden clogs -- the id -- " -- the SHIDA KANZUME Co., Ltd. make), sugar, beta-cyclodextrin, and the citric acid (or lactic acid) were added to water, were heated, and scales liquid was prepared. Evaluation was performed after cooling this liquid. Operating procedure was performed as follows.

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<Valuation-basis> distribution and solubility O: It is distributing and dissolving.

[0032] **: Although precipitate is produced slightly, distribute easily by light stirring.

[0033]

x: It distributes and dissolves and has not run out.

Scales smell O: Even if it compares with a control plot, don't stink.

[0034] **: Stink slightly as compared with a control plot.

[0035] x: Stink as compared with a control plot.

[0036]

[Table 1]

	対照区	実施例1	実施例2	実施例3	実施例4	実施例5	比較例1
魚鱗粉末	–	3	3	5	5	3	0.5
砂糖	15	15	15	15	15	15	15
クエン酸	0.36	0.36	0.36	0.36	0.36	–	–
50％乳酸溶液	–	–	–	–	–	4	–
β-サクロデキストリン	–	–	2	–	2	2	–
水	84.64	81.64	79.64	79.64	77.64	76	84.5
合計	100	100	100	100	100	100	100
pH	3.6	3.8	3.8	3.9	3.9	3.5	6.9
分散・溶解性	–	○	○	△	△	○	×
魚鱗臭の有無	–	○	○	△	○	○	×

[0037] Distributing and dissolving distribution and the "soluble" examples 1 and 2 finely, the solution presented green.

[0038] Examples 3-5 are easily distributed by adding light stirring, although precipitate will arise if it puts.

[0039] even if precipitate produces the examples 1 and 2 of a comparison and it adds stirring -- immediately -- precipitating -- carrying out -- obtaining -- **

Although the "scales smell" examples 1, 2, and 4 were compared with the control plot, especially the scales smell was not sensed.

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sensed small.
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Scales powder, sugar, the citric acid, and beta-cyclodextrin were added to the half water used for <procedure> 1 jelly.
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[0043] 3) Gellant gum and xanthan gum were added to the water of the remaining one half, and it heated to 90 degrees C.
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[0045]
[Table 2]

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キサンタンガム	0.4
魚鱗粉末	1
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水	81.64
合計	100
pH	3.8
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魚鱗臭の有無	○
ゲル強度(g／cm²)	52

[0046] The jelly prepared in the example 6 was jelly which scales distribute to homogeneity and does not sense a scales smell, either.

CLAIMS

[Claim(s)]
[Claim 1] Scales liquid characterized by scales carrying out dissolution distribution acid underwater one.
[Claim 2] The manufacture approach of the scales liquid characterized by making acid water carry out dissolution distribution of the scales.
[Claim 3] The manufacture approach of the scales liquid according to claim 1

characterized by said acid water being with a pH of five or less acid water.
[Claim 4] The manufacture approach of the scales liquid according to claim 2 or 3 characterized by the acid in said acid water being a citric acid or a phosphoric acid.
[Claim 5] The manufacture approach of scales liquid given in any 1 term of claim 2 characterized by making acid water carry out dissolution distribution of the bottom scales of existence of a cyclodextrin thru/or claim 4.
[Claim 6] The processed food characterized by including the scales liquid indicated by claim 1.
[Claim 7] The manufacture approach of the processed food characterized by adding the scales liquid indicated by claim 1.